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Expanding Pedagogical Horizons: A Case Study of Teacher Professional Development

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Abstract: Development of pedagogies within schools that inform adolescent learning has been an ongoing struggle within education systems. A novel approach to this issue was taken by the Non Government Organisation (NGO) 'Evolve' based in Victoria, Australia, who worked in partnership with disadvantaged secondary schools to develop a multi-faceted curriculum. This curriculum incorporated traditional outdoor learning approaches of residential experiences and expeditionary journeys, alongside school based inquiry projects.

Data collected over three years found that the different educational settings of the program exposed teachers to a range of teaching practices. This exposure combined with the collaborative development of curriculum with Evolve staff broadened the pedagogy used by teachers.

This study indicates that programs collaboratively implemented by schools with external providers can expand the development of teachers' teaching practice. The process is most effective when external providers work directly with teachers and students collaborating on the development and delivery of the curriculum.

Introduction

Teachers are central to a change in pedagogy, but the entrenched nature of teachers' approaches to teaching and learning in their classrooms continues to restrain the improvement of adolescent learning (Prosser, McCallum, Milroy, Comber & Nixon, 2008). Reform programs such as those introduced by the Department of Education and Training in Victoria provided guidance, funding and resources to 250 schools over a four-year period with no appreciable change to teaching practices (CAER, 2002). It appears that teachers' "taken-for-granted" practices posed the greatest challenge to change (CAER, 2002, p. 5). Lingard (2006) summarises the issue around changes to adolescent teaching and learning:

A very well established body of work describing the characteristics and needs of early adolescents has been transposed on to classroom practice for almost 20 years. Yet, two decades on, we are still struggling to engage students in these years, as well as to improve outcomes and overall quality of provision (p. xi).

Professional development for teachers can be effective in developing and broadening classroom practices, but this process usually has to be an extended one (Power, 2011). Changing teaching practices takes time. Teachers need opportunities to reflect on their teaching, observe and trial different approaches, evaluate the practices and apply modifications (King & Newmann, 2000).

This article explores a case study where an expansion of teachers' pedagogical understanding was achieved through schools' collaboration with a non-government organisation (NGO), Evolve which is a not for profit organization based in Victoria Australia that works with at-risk young people, to deliver an education and leadership program to Year 9 students over three years. The research discussed in this paper is a component from a study commissioned by Evolve through

funding from the Myer Foundation which is a philanthropic trust based in Melbourne, Victoria, Australia. As independent researchers, the authors were contracted by Evolve to investigate the effectiveness of an education and leadership program. This was a three-year study with interim findings provided in yearly reports. Evolve staff used these reports to inform changes to the program as it progressed. The authors did not have any role in the implementation or facilitation of the program.

The education and leadership program provided extended opportunities for teachers to work with students and NGO staff in different learning environments. These experiences became a source of professional development for a number of the teachers involved leading to an expansion of their teaching practice. A Program Logic Model was used to examine the effectiveness of the program (Cooksy, Gill & Kelly 2001; Dwyer & Makin 1997). The logic model provides a framework to measure outputs and outcomes against pre-determined goals and objectives.

Literature Context

The process of becoming an effective professional teacher continues after the initial teacher education (Hill, Rowan & Loewenberg-Ball 2005). Pre-service teacher education is a critical foundation to becoming an expert teacher. However, learning has to continue throughout a teacher's working life if the skills of an expert are to be achieved and maintained. The ongoing learning should promote reflection and evaluation of teaching practices. (Jensen, 2010; McCulla, 1994). This can include formal learning from seminars, conferences and formal meetings to discuss teaching practices, and informal learning through personal reflection of his or her teaching practice (Postholm, 2008). The key is personal examination of current teaching practices or exposure to new practices that lead to teachers gaining a new understanding and insight into teaching and learning.

Effective professional development is ongoing, collaborative, interactive and connects with teachers and their school setting (Battey & Franke, 2008; Jetnikoff & Smeed, 2012). Teachers' will come to the professional development with unique understandings of teaching and professional requirements due to their different levels of experience and different subject specialities. Although similarities may exist across classrooms or even schools, each teacher will have specific professional development needs. Approaches that encourage teachers' to examine the efficacy of their own teaching practices will promote professional development that is responsive to these individual needs (King & Newmann 2000; Owen 2005).

The challenge of professional development is the transfer of learning by the teachers to their classroom practice. Klien and Riordan's (2009) study of professional development in the Expeditionary Learning Schools Outward Bound highlights this challenge. The professional development explored in their study was to increase teachers' knowledge and implementation of expeditionary learning. Expeditionary learning has been developed from the work of Kurt Hahn's Outward Bound philosophy and "organises learning around an experiential project based approach in which students do original research and create high quality products for audiences beyond the classroom" (Expeditionary Learning Schools, 2013). The program was specifically tailored for teachers from expeditionary learning schools and delivery of the program mirrored learning activities for students in those schools. This delivery provided the teachers with an immersive experience and with exemplars they could apply in their classrooms. However, even with this targeted and context specific professional development there was considerable variation in the application of the pedagogy. The range of implementation could be placed on a continuum from, no implementation, where teachers did not believe the practice fitted with the context of their classroom through to "crafting and jiggering" where teachers who deeply understood the practice modified it for their classroom context (Klien & Riordan, 2009, p. 69). The level of implementation by teachers appeared to be influenced by the teacher's current teaching beliefs. Those teachers who found that the approach connected strongly with their current beliefs achieved a high level of implementation. This outcome supports the concepts of teacher identity and professional association where teachers align themselves with particular practices, and discourse around teaching and learning (Burridge 2010;

Burn 2007; Gee 2001).

Teaching is a social process, contextualised by the school culture, school structures and the teacher's educational history (Freire 1973; Giroux 1988). For professional development to be effective it must account for this context and the teachers' background, ideally, the professional development will occur at the school or be directly connected to the teachers and their educational context (Battey & Franke 2008). Effective professional development according to Kazempour (2009) has four characteristics:

- (1) The professional development occurs over an extended period.
- (2) The professional development involves active participation of teachers immersing themselves in the learning activities and discussions.
- (3) The professional development models the pedagogy.
- (4) The professional development provided teachers with opportunities for continuous reflection on their beliefs and practices during the learning activities and in their classrooms in order to identify areas that could be improved upon and implement the necessary revisions (Adapted from Kazempour 2009, p. 66).

The importance of teacher inquiry and reflection on teaching practices is a recurring theme in the literature, but is often difficult to achieve. Teacher's pedagogical beliefs influence how teachers engage with professional development, and they will tend to dismiss or alter the practices presented to suit their current understanding, rather than critically examine their own teaching (Klien & Riordan, 2009). Social interaction between diverse groups of teachers is an important facet of professional development. Discussing teaching practice with teachers from different backgrounds enables current practices and conceptions to be challenged and discussed. It is the reflective nature of these discussions that encourage teachers to consciously examine and evaluate their own practices, which can lead to a new understanding and a change of those practices (Burridge, 2010).

Evolve Education Development and Engagement Program

The engagement and leadership program aimed at developing the capacity of young people from disadvantaged backgrounds was implemented in four schools across the northern and western suburbs of Melbourne, Australia at the beginning of 2008. Names of the schools, teachers, students and staff have all been provided with pseudonyms, but the NGO and program name are authentic. The Evolve Education Development and Engagement Program was designed to work with groups of students who commenced at the start of Year 9 and continued with the program through to Year 11. The three-year plan involved an initial intake of 60 students from two different locations on the outskirts of Melbourne. Two different ways of implementing the program occurred. The Northern Cluster of Schools (Northern Cluster) trialled groups of ten students from each of the three local secondary schools, and River Glenn P-12 College (River Glenn) approach entailed 30 students from within one school. One teacher from each of the four schools planned to work with Evolve staff to facilitate the program. Additional teachers assisted these teachers during the residential phases of the program. The year levels and the core components of the curriculum for both groups were similar, but the allocation of time, continuity of staff and support from the schools' administration were significantly different. These differences led to the Northern cluster of schools withdrawing from the program after the second year. This model withdrew 10 students from each school and was not sustainable due to lack of school support. At River Glenn P-12 College, the program was maintained for the full three years and enrolled a new cohort of Year 9 students each year, involving a total of 90 students and 14 teachers.

The original plan was to provide a long term leadership program that provided a range of learning opportunities including community engagement, outdoor experiences and inquiry based learning. The goals of the program were twofold:

- (1) To provide young people with opportunities for personal growth and development.
- Identification of life opportunities to enable individuals to develop the skills and potential pathways required in achieving them.

(2) To influence school structures and teacher practices to use inquiry based pedagogy.

The program combined school-based curriculum with residential sessions and expeditionary journeys over the three years. Each year was tailored to the students' developmental needs, focusing on personal development and organization skills in Year 9, extending these skills and exploring vocational opportunities in Year 10, and to finish in Year 11 with students identifying personal goals and pathways to achieve them. The components of the program are summarised in Table 1.

Year levels and activities
Year 9
One week residential at Typo station
School based inquiry project
Two week residential including an expedition based at Typo station
Year 10
School based community / inquiry project
One week residential at Typo station
One week residential and exploration of vocation opportunities based at Typo Station
Extended bushwalking expedition
Year 11
School based vocational and study support through after school sessions
<u>Student driven extended international expedition including a community volunteer project</u>

Table 1: Components of the three-year Education Development and Engagement Program

Evolve provided two core staff that worked with the teachers at the schools on a regular basis providing a link between the students' time and experiences at Typo Station and the regular school days. The Evolve staff and teachers collaborated and shared resources to explore inquiry learning approaches to curriculum delivery of the school based program. This arrangement supported a more integrated learning experience for students and provided opportunities for teacher professional development.

The experiential learning that informed the activities at Typo Station was based on David Kolb's (1984) four stage model of experiential learning. Kolb's model begins with the here and now experience (concrete experience), followed by the collection of data and observations about the experience (observation and reflection). The data is then analysed (formation of abstract concepts and generalisations) and conclusions about the analysis are fed back to the person in the experience for his or her use in the modification of behaviour and choice during new experiences (testing implications of concepts in new situations). This new information is then available for the next experience; thus the individual's previous experiences will build on and affect future experiences and possible learning (Luckner & Nadler, 1997).

The inquiry learning that guided the school curriculum aspect of the program can be described as a process where students develop their own questions about a topic and have the time to research and explore the possible answers (Branch & Oberg, 2004). These inquiry questions will be specific and require research skills that involve the gathering of information, which is evaluated, analysed and applied to develop an understanding about the question being investigated (Wilson & Wing Jan, 2005). Students will communicate their findings to others or apply their understanding to a new situation to illustrate the learning that they achieved through the inquiry process.

Method

The research focused on investigating the effectiveness of the Evolve Education Development and Engagement Program in achieving the two aims of student personal growth and development of inquiry learning. A Program Logic Model was used as a framework to measure outputs and outcomes of the program against pre-determined goals and objectives (Cooksy, Gill & Kelly 2001; Dwyer & Makin, 1997). The logic model is an effective management tool that can assist with planning, implementation and evaluation of development and intervention programs. It involved identifying and mapping logical links between the program goals, activities, outputs and outcomes. In doing so, it helped to frame the program into a logical sequence and identified the connection between *what* we do, *how* we do it, *for whom* we do it and *why* we are doing it. “The key contribution of a program logic model is its ability to explicitly delineate in writing a program’s features, goals, and rational” (Pathman, Thaker, Ricketts & Albright 2003, p. 308).

Figure 1 presents a pictorial illustration of the program logic tool developed for the Education Development and Engagement Program. This flow diagram details the goals of the program and links these goals to the activities. The measurable outputs are identified and aligned to these activities. These outputs are in turn aligned to expected outcomes, which are in turn connected to the expected benefits and impacts. The program logic tool allows identification of how the program influences the various components: students, teachers, school and community. Each component has been presented in separate columns.

This paper is focused on the teacher column of the program logic model set out in Figure 1. The teacher professional development that occurred through teachers’ collaboration with Evolve staff was expected to enhance student learning. This goal would be achieved through the development of teachers’ knowledge and application of inquiry learning. As set out in the activities box, the professional development was not a series of planned activities, but was to occur through the collaborative implementation and running of the education and leadership program. It was expected that teachers understanding of inquiry and experiential pedagogy would expand as they assisted in delivery of the residential components of the program and developed resources and learning activities for the school based curriculum. These expected outcomes are listed in the outcomes and benefits and impacts boxes. These goals and expectations provided by the program logic model did focus the direction of the data collection framing both the observations and the interview questions.

Some key data from the students and school columns have been presented to provide the context of the teacher data and findings. Teachers do not work in isolation but are influenced by both students and the school structures (Butt, Raymond, McCue & Yamagishi, 1992). The professional development that teachers achieve from involvement in the program must be examined within the context of the students with whom they work and the school structures in which they work.

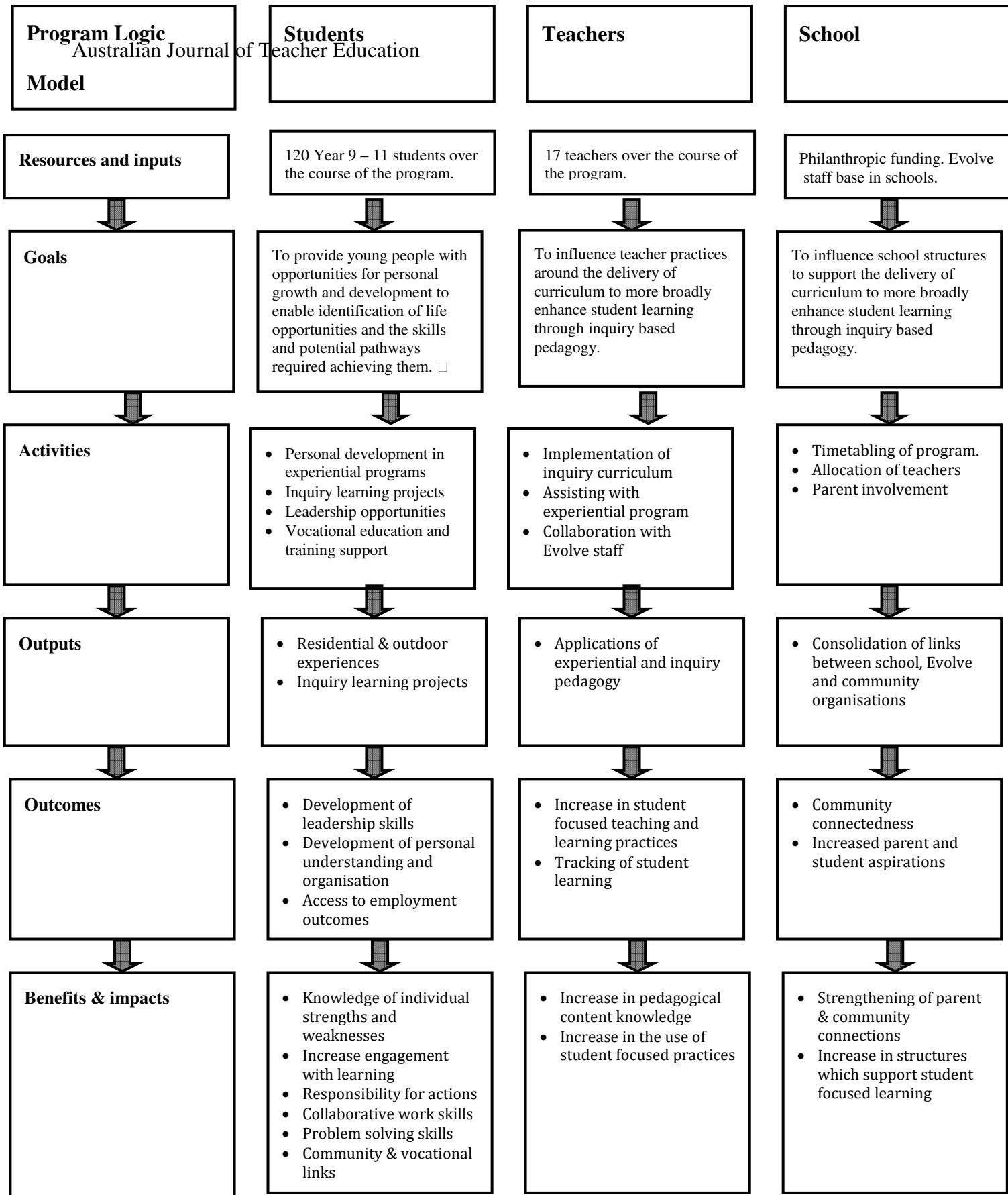


Figure 1: Evolve Education and Engagement Program – Program Logic Model

Data Collection

To explore the program's influence on teacher professional learning, data were collected through field observation and semi-structured interviews. Field observations and interviews were conducted at the school and during residential sessions at Typo Station. The participating teachers were engaged at two different levels, as a key teacher working with the students for the whole year or assisting teachers who attended the residential activities at Typo Station or extended expeditions. Most teachers volunteered to participate in the program, but initially a small number were "tapped on the shoulder" by the principal and asked to take on the role.

Semi-structured interviews were conducted with students, teachers, Evolve staff, and parents to gain an understanding of the program from a range of perspectives. This interview style is flexible and allowed the data and insights to be heard as the "informant's perspectives are provided using language natural to them" (Burns 2000, p. 441). The interviews with students, teachers and Evolve staff were conducted at the start of the year during the residential camps and the end of the year. These were timed to identify the goals, activities, outputs, outcomes, benefits and impacts as detailed in the program logic model. The interviews at the start of the year allowed exploration of the program goals. The residential camp interviews provided insights into the experiential learning aspect of the program and allowed changes from the start of the year to be identified. End of year interviews reflected upon the activities in more detail and explored the outcomes, benefits and impact of the year's activities. The end of year interviews also explored the future possibilities of the program.

Student interviews were conducted in small groups to provide students with peer support and make the interviews seem less formal (Fontana & Frey, 1998). Teacher and Evolve staff interviews were conducted individually at the school or the residential camp. Interviews were conducted at the schools each year with parents to gain the parents' perspective on their child's involvement and possible outcomes seen at home. These interviews occurred for the Northern Cluster and River Glenn for the first two years, and only for River Glenn in the final year of the program. At River Glenn interviews were also conducted with the same schedule with a second cohort of students who commenced the program in 2009. The interview data were supplemented with participant observations from the Year 9 and 10 classrooms and residential camps. These observations provided an additional layer of information to support the formal interview data collection process (Fontana & Frey, 2003).

The focus of this paper is on understanding the professional development of teachers and it is the teacher data that are the focus of these findings. Four teachers and two coordinating Evolve staff connected with the program were interviewed two to three times each year over the course of the program. A further 12 teachers who attended residential sessions were interviewed over the course of the three years. Finally, the Principal and Assistant Principal from River Glenn were interviewed each year over the course of the program.

All semi-structured interviews were digitally audio-recorded and then directly transcribed along with field observation notes. The transcribed data were coded and analysed for the program elements that related to the data collection time. Data were analysed as the program progressed to inform the next data collection activity. Connections were made between the program goals, activities, outputs and outcomes to provide an understanding of the program's influence on the teachers' work and school structures over the three years (Schwandt 2000).

Findings

The Evolve Education Development and Engagement program provided professional development opportunities for those teachers involved with the program. The programs' successful outcomes for the participating students were a catalyst for the teachers' professional development. It seems unlikely that the teachers would have used the learning activities and pedagogy in other areas of the curriculum without the successful student outcomes. A summary of students self reported changes are set out in Table 2. Also indicated are those changes which were identified by teachers

and parents. Only four of the 14 changes reported by the students were not verified by another source indicating a high level of program effectiveness for the students. Teachers verified eight of the 14 changes, with these assessments being aligned to attributes students could use to support their classroom learning.

Changes identified by students	Verified by teachers	Verified by parents
✓ Increased knowledge and confidence about self	✓	✓
✓ Increased capacity to cope with different people and be patient	✓	
✓ Increased coping skills		
✓ Increased persistence with difficult tasks		
✓ Increased responsibility for actions	✓	✓
✓ Increased confidence in talking with adults and public speaking	✓	✓
✓ Better personal organisation	✓	
✓ Better awareness of what needs to be done	✓	
✓ More willing to try new things	✓	
✓ More tolerant and less judgemental		
✓ Increased willingness to help others and be part of a team	✓	✓
✓ Increased friendships and support networks		
✓ Manage time to complete projects more effectively	✓	
✓ Pride in ability to make things	✓	

Table 2: Summary of students self reported changes

River Glenn capacity to maintain the program for the full three years was an important factor in achieving changes to teacher pedagogy. A significant change in teaching practice was seen in the two teachers who had involvement across the three years of the program. For these two teachers, the experience influenced their educational philosophy to view students as agents in their own learning as Ben expressed, *“they are so capable when you give them the opportunity”*. The sharing of resources by these two teachers from the program resulted in some teachers outside the program incorporating inquiry learning into their teaching as seen with the Year 9 humanities teachers as Bernie explained, *“I have shared the materials with the humanities teachers and we are running a water inquiry across all the classes. I am not sure what the Evolve kids think, but the teachers are using it”*.

Significant changes also occurred at the school level towards the end of the three years with the implementation of an inquiry project for all Year 9 students at River Glenn. This was in contrast to the other schools, where the program ended after 2 years involving only 30 students and 9 teachers across the 3 schools. No changes occurred at a school level for any of the Northern Cluster schools,

and there was only a small influence on teachers' practice with only two teachers reporting the use of inquiry learning activities in their classrooms.

Teachers across all the schools identified positive changes to both the personal and academic approach of students. In the first year, these changes were attributed to the residential aspects of the program as the initial implementation of the school based curriculum was ineffective. It was ineffective for several reasons. First, the Evolve staff presumed that the teachers involved in the program would be able to develop the inquiry learning activities required and provided very little program documentation and resources. In the initial stages of the program, there was little collaboration between staff and no mentoring by Evolve staff. Teachers had to interpret the requirements of the curriculum from conversations with Evolve staff rather than being supported with clearly documented guidelines and teaching resources. As Janice summarised, "*we thought at the start it was a program with curriculum and guidelines, but we soon found out it was up to us*".

As a result, during the first year of the program the teacher's role was unclear as demonstrated at the first residential session where, rather than working collaboratively together, teachers were used by Evolve staff as assistants to run activities. A professional relationship had not been developed at this early stage between Evolve staff and teachers as Graham a teacher from the Northern Cluster described during the first year of the program,

The Evolve staff are great and competent at running activities at Typo, but they don't realise we understand the underlying philosophy of what the program is trying to achieve. Some of us did this 20 years ago... The communication has been poor between the schools and Evolve.

This changed through the second year of the program as communication and understanding of program goals between Evolve staff and teachers improved. The change was clearly seen when Evolve staff and teachers worked collaboratively to identify deficiencies in the skills students required for the school based inquiry projects. This collaboration resulted in lengthy discussions around teaching practice and the goals of the program. The discussions increased the teachers understanding of the inquiry process and increased the Evolve staff understanding of the schools. As Janice mentioned in the second year of the program that, *Nicky (Evolve staff member), has been fantastic to work with, very supportive and I have stayed with the program in its second year.*

In the second year of the program, the three teachers who continued to work within the program all started to use a number of teaching and learning activities from the program in their other 'non-Evolve' classes. This was in contrast to the teachers who were new to the program and those who were less directly involved. These 'new' teachers did not report applying the pedagogies observed to their own teaching practice but did comment on how engaged students were as Carly noticed when assisting at the station in 2009, "*the kids obviously love the activities here, they are really focused and engaged*"

The most significant changes relating to pedagogy were seen at River Glenn Secondary College where the program was maintained for the full three years. A summary of the pedagogical related outcomes including the changes at River Glenn are summarised in Table 3.

Time	Interview comments	Summary of pedagogical related outcomes
2008	<p><i>"The kids obviously love the station experience. They have really grown over the year". Bernie, River Glenn teacher 2008.</i></p> <p><i>"There is no documentation we thought we were getting a program...Evolve say the students have to do it, it is their project, so we are not sure how much guidance to give". Graham, 2008.</i></p> <p><i>"Projects were too open ended and lacked a clear focus, students did not have the skills to conduct the research. It took us a while to realise students did not have skills, such as, how to put together a presentation" Bernie 2008</i></p> <p><i>"The Evolve staff knew their outdoor ed stuff but we were concerned about some of the other activities. As teachers we would take a different approach" Janice, 2008.</i></p>	<p>Teachers' identified student personal and academic development which was attributed to the Evolve program</p>
	<p><i>"I think overall they're getting a much better grounding. Life skills, on top of meeting people, the way they conduct themselves, they're just blossoming every day, you can see something coming out of it". Ben, Yr 10 teacher 2009</i></p> <p><i>"Working with other teachers from the across the schools has been rewarding and Nicky (Evolve staff member). I've used these approaches in my VCAL classes". Janice, 2009.</i></p> <p><i>"We realised they did not have the skills to do many of the things required. We developed their skills to run a group discussion which has a focused outcome. Research skills, such as searching the web effectively, rather than typing in some general word into Google. Library skills and how to collect data, take notes. In the past there was just not enough scaffolding". Andre 2009.</i></p> <p><i>"I like being up at the station working with the kids. The experience we've had has been fantastic" Janice, 2009.</i></p>	<p>Teachers' were unsure of Evolve expectations around inquiry learning and the school based curriculum.</p> <p>Teachers' identified a range of skills that students needed to develop to engage in inquiry learning.</p> <p>Teachers' assisted the Evolve staff at Typo station rather than team teaching the residential activities.</p> <p>Teachers' identified student personal and academic development which was attributed to the Evolve program. These attributes were seen to strengthen and become more sophisticated for students participating in year two of the program.</p> <p>Teachers used activities from the Evolve program with other classes</p> <p>Teachers' in collaboration with Evolve staff identified issues around students learning and developed strategies to addresses these issues.</p> <p>Teachers' worked collaboratively with Evolve staff at Typo station taking a more active role in the residential program delivery and enjoying the work.</p>

Table 3: Pedagogical related outcomes for teachers

Time	Interview comments	Summary of pedagogical related outcomes
2010	<p><i>"The Evolve students have developed characteristics that help them work together, in the Evolve class they don't muck up like in other classes. The mentality of the class, on the whole, is different"</i> Jill 2010.</p> <p><i>"The inquiry teachers have been developing their own workshops and they had to be able to come up with documentation of a workshop that can fit into a 45 min period".</i> Bernie, 2010</p> <p><i>"We wanted all kids working in the (Evolve) style to develop a project inquiry. We have used this as a model for the inquiry based subjects this year (the program was implemented in 2010). Evolve has had a pervasive influence... It has got them (students) thinking rather than school being 'done to them'".</i> River Glenn Assistant Principal 2010</p> <p><i>"We asked the students how they wanted to organise Evolve in Year 11 and they went for an afterschool program"</i> Ben, 2010.</p> <p><i>"I am taking a more organic approach to my teaching with greater connection with parents. I realise students have a lot to offer and capable. It is important to personalise learning where the learning outcomes result in a student driven product. It connects with the student and helps with motivation"</i> Bernie, 2010</p>	<p>Teachers' identified class cultural differences in the way Evolve students worked with each other compared to other students in the same year level. These differences were attributed to the Evolve program.</p> <p>Teachers expressed an understanding of cooperative and inquiry approaches to teaching and learning. Some teachers used these approaches extensively in their subject specific classes.</p> <p>Inquiry learning for all year 9 students was introduced across the school at River Glenn</p> <p>At River Glenn the teacher and Evolve staff democratically negotiated the 3rd year of the program with the students.</p> <p>The two teachers involved for the 3 years of the program at River Glenn commented that they had changed their outlook on student learning.</p>

Table 3: (Continued): Pedagogical related outcomes for teachers

The outcomes summarised in Table 3 identify pedagogical outcomes at both a teacher and school level. At a teacher level, the three teachers who were involved over the course of the program identified positive changes relating to pedagogy. All three teachers reported an improved understanding of inquiry learning and to using inquiry learning practices in their 'non-Evolve' classes. This was supported by comments from the River Glenn Assistant Principal as she moved around the school in an out of classrooms; *I've seen a lot of revitalisation of the teachers...they have developed it themselves, their own guides, assessment criteria...everybody should really be doing it.*

Even with the positive observations by the Assistant Principal the outcomes that occurred for the teachers associated with the program were varied. These outcomes can be placed along a continuum from teachers' observing and critiquing practices, to applying specific learning activities in their classes, through to a change in one's philosophical and outlook on education. Teachers attending residential camps commented on the level of student engagement and Janice described using inquiry learning in her VCAL (Victorian Certificate of Applied Learning) classes. Finally Bernie, who became the River Glenn school coordinator for the Evolve program, reported the greatest professional change of all the teachers. By the third year of the program he had changed his educational philosophy, becoming a more student centred, social constructivist teacher. This change he attributed to involvement with the Evolve program. As Bernie indicates he explored different pedagogy with his Evolve class, because it was "*like an experimental class where you felt it was OK to try different approaches*".

The positive outcomes for students and the observed revitalization of teachers who were teaching in the Evolve program led the Principal at River Glenn to institute a school wide change. An inquiry project was included within the Year 9 curriculum as the Assistant Principal explained, “*We wanted all kids to work in this style...we used it (the Evolve inquiry project) as a model for our inquiry based subject this year*”.

The data presented indicates the achievement of a number of goals, outcomes and benefits as detailed in the teacher column of the program logic model (see Figure 1). The key goal to influence the delivery of the curriculum was seen in the introduction of an inquiry learning project for all Year 9 students. The teachers working in the Evolve program reported the increased use of inquiry learning. They described an improvement of their understanding and application of inquiry learning practices but not of experiential learning practices. Although these are self-reported changes, the trustworthiness of these findings is supported by collection of data over a three-year period. The three teachers who delivered the program were interviewed each year for the three years enabling their development of pedagogy and understanding of inquiry learning to be tracked.

Discussion

The Evolve program contained two components, the Typo Station residential / expedition activities and the school based inquiry projects. Experiential learning theory underpinned the activities at Typo Station and inquiry learning guided the school based student projects.

Teachers who accompanied students on the residential activities were able to witness some inquiry activities and experiential learning theory being applied. These teachers acknowledged the effectiveness of this type of learning, but they did not transfer the practices readily back to their classrooms. This is a drawback of observing practices in unusual settings. Without reflective discussions about the observed practices and exploring the possibility of how these maybe applied in the classroom, many teachers will be unable transfer the experience (Luckner & Nadler, 1997). Targeted reflective discussions with teachers’ about their experiences are needed if programs, such as the Evolve program, are to encourage teachers to apply the observed pedagogy to their classroom settings. These discussions will be more effective if they involve teachers from different subject disciplines and with different views on education, as the diversity of opinions will promote a more robust discussion to evaluate how the observed practices compare with current classroom teaching approaches. This type of discussion will encourage teachers to scrutinise and evaluate current practices more closely than if they share a common approach or teaching beliefs (Giles & Hargreaves, 2006).

The difficulty of transferring teaching practices from one context to another did not occur for teachers of the inquiry learning pedagogy for two reasons. First, the pedagogies used by the Evolve staff were applied in the classroom setting where teachers worked with students, so a transfer of pedagogy to a new setting was not required. The second and potentially more influential aspect was the development of collaboration between teachers and Evolve staff. During the early stages of the program teachers did not fully understand the goals and aims of the program, which was due to a lack of documentation and poor communication from the Evolve staff. This improved towards the end of the first year due to increased collaboration around the school based curriculum. The collaboration was in part driven by difficulties in facilitating the inquiry projects. Finding solutions to these issues required Teachers and Evolve staff to consult and share their ideas about the program and inquiry learning. This process proved to be most effective when it involved reflective discussions about student learning and teaching strategies.

An example of this process becoming effective professional development was seen with the student’s inquiry projects. The projects were initially presented as open-inquiries with minimal direction by the Evolve staff or the teachers. Both the Evolve staff and teachers realised that this was an ineffective approach for the Year 9 students learning. They noticed that students struggled to identify appropriate inquiry questions and did not have the research skills to start the investigation. Once this issue was identified, teachers and the Evolve staff worked together to explore different

strategies that included modifying the introduction of the school based projects and scaffolding the students learning by using research protocols. Although, much of this activity was led by the Evolve staff and their knowledge of inquiry learning, it also required the teachers' understanding of the students and the school processes to develop effective teaching strategies. The Evolve staff and teachers were operating as an informal professional learning team (PLT), evaluating the effectiveness of their teaching practices through reflective discussions.

PLTs that focus on pedagogy and student learning have been found to be effective vehicles to change classroom practice (Giles & Hargreaves, 2006; Hargreaves, 2000). This was the case for the Evolve staff and teachers, who as a group had the immediate issue of student learning to resolve. This required them to research and discuss why current practices were ineffective. These discussions expanded both teachers' and Evolve staffs' understanding of inquiry learning as exemplified in changes to the facilitation of the program and development of protocols and guidelines for the students' inquiry projects. As Sachs (2003) observes, it is the rethinking of "their social and pedagogical practices within and outside of the school ...questioning and shedding previously cherished values and beliefs" which provided the catalyst for change (p.152).

The Evolve Education Development and Engagement Program provided effective professional development for those teachers who worked within the program leading to a change in their teaching practice. The program provided the four characteristics of effective inquiry based professional development as identified by Kazempour (2009). Engagement with the program occurred for long periods of time, three years for two of the teachers. Teachers were immersed in the program, with their students, in their school setting, planning, teaching and evaluating. Evolve staff modelled how to facilitate inquiry learning and teachers were provided with opportunities for reflection on practice through the informal PLT which formed around student learning issues. As with the Klien and Riordan's (2009) study there was a continuum of implementation of the inquiry learning by the teachers that seemed to link with the teachers' current pedagogical beliefs. The reflective discussions through the informal PLTs appear to enhance understanding and the use of inquiry learning within the school program. In contrast, the teachers and Evolve staff on the residential camps did not engage in reflective discussions to explore the application of experiential learning. This lack of discussion maybe one of the reasons why teachers' did not use experiential learning approaches in their classroom practice. There was little follow up with assisting teachers which was a missed opportunity to engage these teachers in discussions around teaching practice and the application of experiential and inquiry learning to their classrooms.

The experience from this program implementation has provided some insights for future programs where schools are collaborating with NGOs. Basing the program in a single school rather than across a number of schools enables a much easier coordination of the program components and communication between teachers and NGO staff. Collaboration between teachers and NGO staff should be promoted from the start of the implementation process as it is the collaboration around the tasks relating to the teaching and learning that promotes the most effective teacher professional development. When the River Glenn teachers and the Evolve staff worked collaboratively on key questions, or issues related to facilitating the program, the understanding of all the people involved expanded. This type of collaboration could be initiated at the start of a program by examining current classroom practices to explore how the program being suggested may change the way students' learn. Focusing on classroom practice as part of the implementation process could promote the development of professional learning teams and build the trust required to support the reflective discussions between teachers, which can lead to positive changes in classroom practice, and ultimately students learning.

The collaboration of an NGO with schools in delivering innovative education programs has the potential to expand teachers' pedagogical horizons through increased pedagogical knowledge. In the case presented, NGO staff collaborated with teachers using both experiential learning and inquiry learning approaches with the school students. This was most effective for the inquiry learning pedagogy where teachers could see this pedagogy applied in the context of the classroom and with the teacher's students. The process was enhanced by reflective discussions of teaching and learning practices between teachers and NGO staff with a focus to improve the learning of students. It was the

collaboration around curriculum implementation that fostered the reflective discussion of teaching practices as the NGO staff and teachers worked together on issues of student learning. It was the reflective discussions of teaching practices that lead teachers to experiment with different teaching approaches and develop new pedagogical perspectives on student learning.

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